

BETA3-ADRENOCEPTOR AGONIST, MIRABEGRON: A NOVEL MEDICAL THERAPY FOR LOWER URINARY TRACT SYMPTOMS IN PATIENTS WITH INTERSTITIAL CYSTITIS

Hypothesis / aims of study

Background: The prominent symptoms of interstitial cystitis (IC), such as full bladder pain and frequent micturition, are intractable and reduce patient's QOL. Because bladder hydrodistension therapy only provides temporary relief of pain and lower urinary tract symptoms (LUTS), retreatment within a couple of months is usually necessary. Thus, self-bladder training may be crucial for IC patient.

Objectives: According to our previous reports (The effect of Chinese herbal medicine containing aconitine on the pain relief in interstitial cystitis patients:- a preliminary study, in the 104th AUA annual meeting 2009, The astrocyte-targeted therapy by bushi for the neuropathic pain in mice, *PLoS ONE*. 2011; 6: 8. e23510), chronic pain and full bladder pain in patients with IC have become controllable using traditional Chinese medicine containing aconitin tuber, at the Department of Urology, University of Yamanashi Hospital. However, little improvement for LUTS, especially frequent micturition, has been obtained with combination of Chinese medicine containing aconitin tuber, anti-cholinergic, and other possible medications. Mirabegron has just been approved by FDA for the treatment of OAB in 2012, and possesses a unique mechanism of action; beta3-adrenergic agonist. Hence, the objective of this study is to examine the efficacy of Mirabegron in the frequent micturition in patients with IC.

Study design, materials and methods

At the Department of Urology, University of Yamanashi Hospital, 50 IC patients received a traditional Chinese medicine including bushi, and showed good improvement of pain. Ten patients among 50 complained frequent micturition even after bladder hydrodistension therapy, and were administered Mirabegron 50mg/day as add-on therapy with traditional Chinese medicine including bushi. IPSS, OABSS, IC score, and FVC were evaluated before and after Mirabegron and Chinese herbal medicine.

Results

micturition volume(ml) : $62 \pm 29.3 \rightarrow 170 \pm 88.0$
frequency of micturition (times) : $19.3 \pm 5.0 \rightarrow 10.2 \pm 4.3$
nighttime micturition frequency (times) : $6.7 \pm 3.4 \rightarrow 2.6 \pm 1.9$
IPSS : $23.2 \pm 6.28 \rightarrow 7.8 \pm 9.8$
OABSS : $7 \pm 2.6 \rightarrow 3.7 \pm 4.7$
IC score : $15.2 \pm 3.2 \rightarrow 4 \pm 3.6$
QOL : $5.9 \pm 0.3 \rightarrow 1.8 \pm 1.7$

Interpretation of results

Marked and long-term improvements in micturition volume, frequency of micturition, and nighttime micturition frequency were observed in all 10 patients.

Sustained improvement in full bladder pain was also observed. Very interestingly, some patients showed continuous disappearance of bladder pain and LUTS even after discontinuation of Mirabegron.

Concluding message

Our results suggest that Mirabegron, with the novel mechanism of action, is useful for alleviating full bladder pain and LUTS in patients with IC.

References

1. The astrocyte-targeted therapy by bushi for the neuropathic pain in mice, *PLoS ONE*. 2011; 6: 8. e23510

Disclosures

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